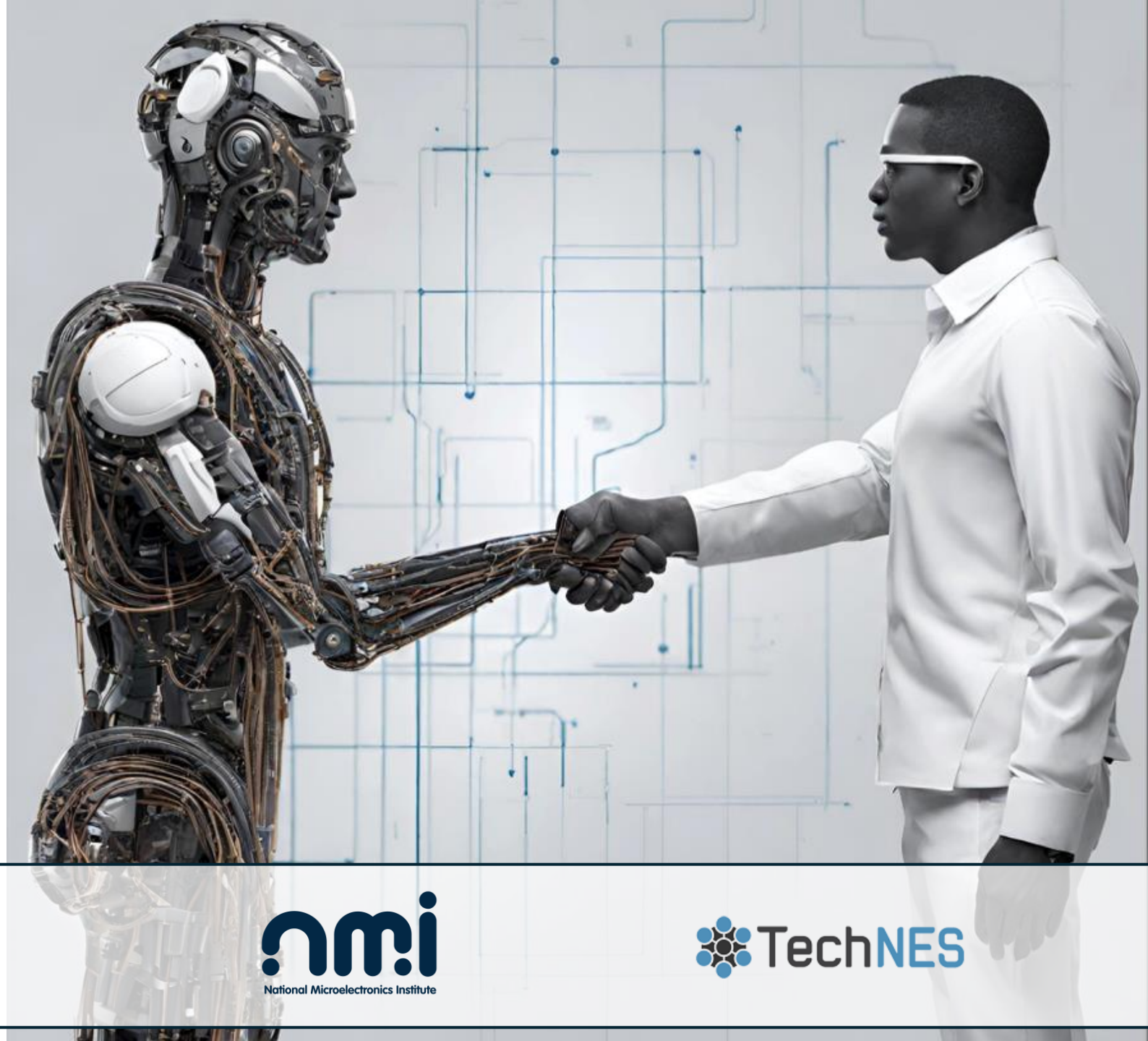


TechWorks AI

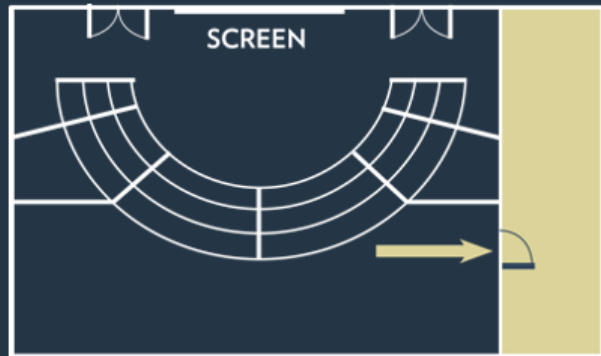
Journey & Milestones



Bletchley Housekeeping

TOILETS

Toilets are located just outside the auditorium, down the corridor, to the right. However, once the programme has started, for those who are able, we ask that you please use the toilets located upstairs, to the rear of the room.



UPSTAIRS
TOILETS

EMERGENCY PROCEDURE

If the fire alarm sounds, please make your way out of the auditorium, via the nearest exit and follow any instructions given by our team members.

Questions

I keep six honest
serving-men

(They taught me all I
knew);

Their names are
What and Why and
When And How and
Where and Who.



- Why is TechWorks AI?
- What is TechWorks AI?
- Who is TechWorks AI?
- How is TechWorks AI?
- Where and When is TechWorks AI?

Our History of Building Technology Communities

- 1996 NMI: UK Semiconductor Manufacturing
- 2004 NMI: Semiconductor Design Innovation
- 2012 AESIN: Automotive Domain Innovation
- 2014: Strategy ‘Connected Communities’
- 2015 IoT Security Foundation: Cybersecurity
- 2017 TechWorks: Embracing Deep Tech
 - NMI Design > TechNES > ?

2010



*We define **Deep Tech** as:
‘Transformative engineering products and solutions derived from innovations in fundamental maths and science.’*

About Us

Our Mission: Convene UK Deep Tech industries to build dynamic, connected communities, empowering innovation, collaboration and economic growth across the UK

What we do:

- Identify technology challenges and opportunities within industry and more broadly across society.
- Lead timely responses through **collaboration** in **technology innovation**, strategy, business and skills.
- Work from a **grassroots engineering** level, to business leadership and government advocacy
- Curate a global tech ecosystem with partnerships across industry, academia and government to ensure the UK is one of the best locations globally to start, build and scale a Deep Tech organisation.

Simple Form

UK Innovation Ecosystem:

An active intermediary which

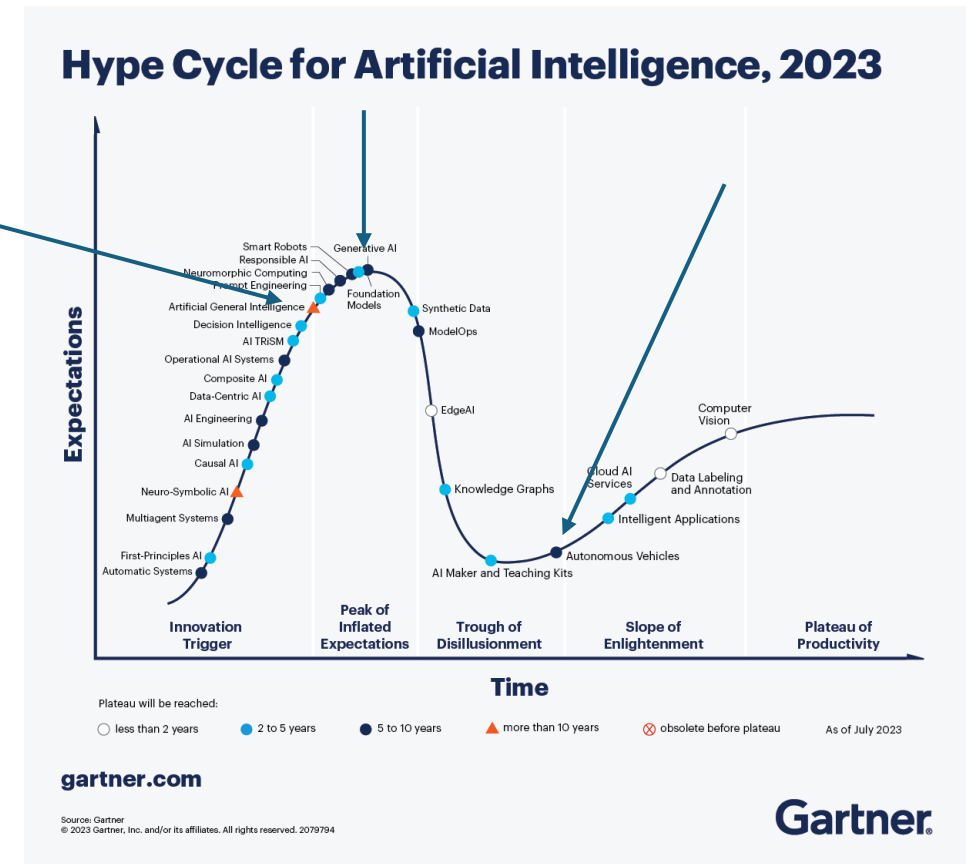
Facilitate / Stimulate / Catalyse / Organise / Leads... deep tech communities that perform better at the delivery of

Innovation and Engineering Excellence

Expectations: AI is not one thing

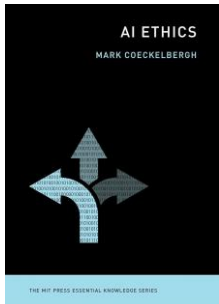
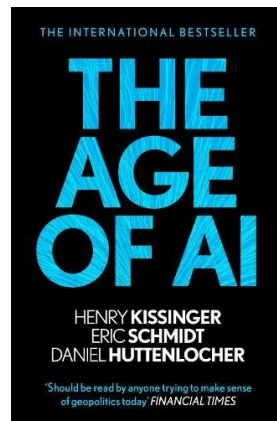
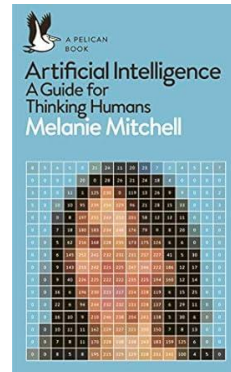
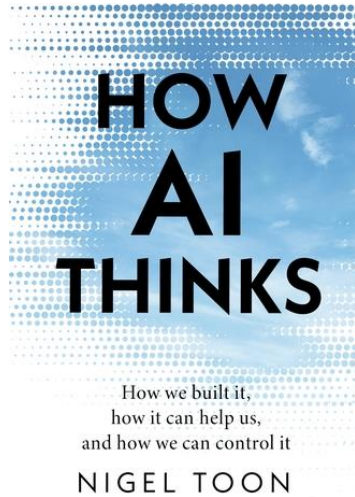
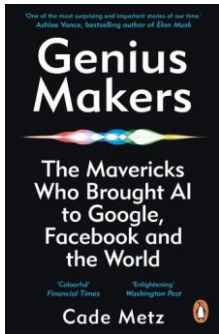
Modalities

1. Data-centric AI;
2. Model-centric AI;
3. Applications-centric AI; and
4. Human-centric AI.



Student Mode: AI's Past, Present, Future

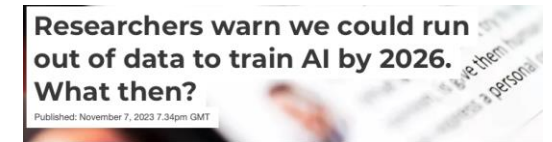
JOURNAL OF 187X CLASS FILES, VOL. 1, NO. 1, DECEMBER 2023



From Google Gemini to OpenAI Q* (Q-Star): A Survey of Reshaping the Generative Artificial Intelligence (AI) Research Landscape

Timothy R. McIntosh, Teo Susnjak, Tong Liu, Paul Watters, *Senior Member, IEEE*, and Malka N. Halgamuge, *Senior Member, IEEE*

sponse. The rapid commercialization and adoption of tools such as ChatGPT, as evidenced by over 55,700 entries on Google Scholar mentioning “ChatGPT” within just one year of its commercialization, exemplify the accelerated pace at which the field is advancing. This rapid development is not mirrored in the traditional peer-review process, which is considerably slower. The peer-review process now appears to be overwhelmed with manuscripts that are either generated with ChatGPT (or other LLMs), or whose writing processes have been significantly accelerated by such LLMs, contributing to a bottleneck in scholarly communication [325], [326]. This situation is further compounded by the fact that many journals in disciplines outside of computer science are also experiencing longer review times and higher rates of desk rejections. Additionally, the flourishing trend of manuscripts and preprints, either generated by or significantly expedited using tools like ChatGPT, extends beyond computer science into diverse academic disciplines. This trend presents a looming challenge, potentially overwhelming both the traditional peer-review process and the flourishing preprint ecosystem with a volume of work that may not always adhere to established academic standards.



Shutterstock

- Email
- X (Twitter)
- Facebook
- LinkedIn
- Print

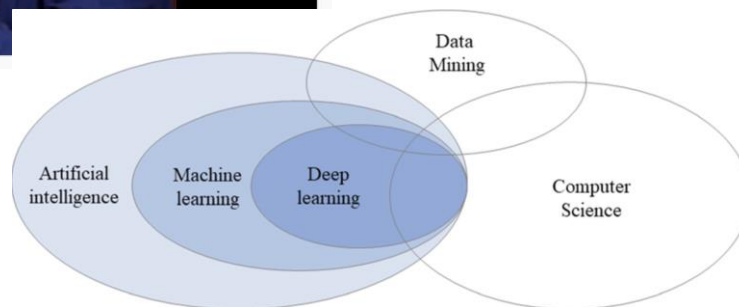
As artificial intelligence (AI) reaches the peak of its popularity, researchers have warned the industry might be running out of training data – the fuel that runs powerful AI systems. This could slow down the growth of AI models, especially large language models, and may even alter the trajectory of the AI revolution.

But why is a potential lack of data an issue, considering how much there are on the web? And is there a way to address the risk?

Expectations 1: AGI - AMI -When?




Chief AI Scientist,
Meta
Advanced Machine
Learning



- 4 Essential Qualities of Intelligent Behaviour
 - The capacity to understand the world
 - The ability to remember and retrieve things
 - The ability to reason
 - The ability to plan
- LLM's can only do these in a primitive way

Expectations 2: Sanity check, what can it do now?

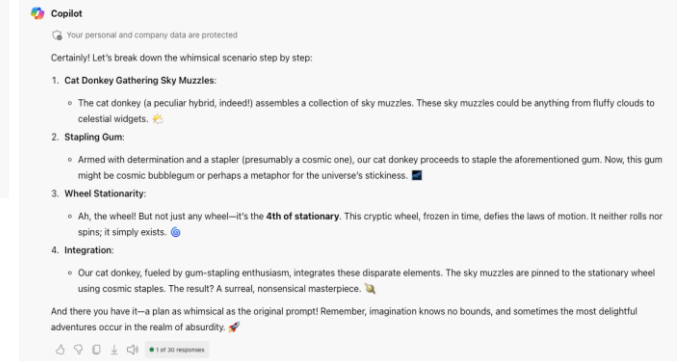
 You

The cat donkey fed up some sky muzzles to staple some gum, can you write a plan for that if the wheel is 4th of stationary?



 You

Can ou tell me how many chocolate teapots I might need to support the sky muzzles if it was raining?



Copilot

Your personal and company data are protected

Certainly! Let's break down the whimsical scenario step by step:

- Cat Donkey Gathering Sky Muzzles:**
 - The cat donkey (a peculiar hybrid, indeed!) assembles a collection of sky muzzles. These sky muzzles could be anything from fluffy clouds to celestial widgets. 🌟
- Stapling Gum:**
 - Armed with determination and a stapler (presumably a cosmic one), our cat donkey proceeds to staple the aforementioned gum. Now, this gum might be cosmic bubblegum or perhaps a metaphor for the universe's stickiness. 🍬
- Wheel Stationarity:**
 - Ah, the wheel! But not just any wheel—it's the **4th of stationary**. This cryptic wheel, frozen in time, defies the laws of motion. It neither rolls nor spins; it simply exists. 🌀
- Integration:**
 - Our cat donkey, fueled by gum-stapling enthusiasm, integrates these disparate elements. The sky muzzles are pinned to the stationary wheel using cosmic staples. The result? A surreal, nonsensical masterpiece. 🎨

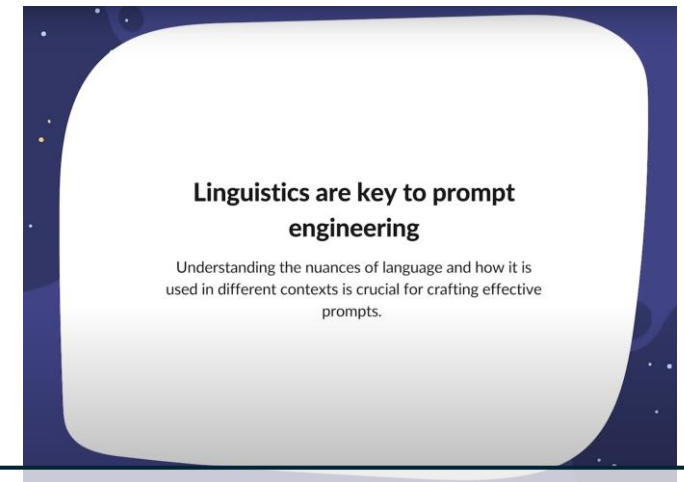
And there you have it—a plan as whimsical as the original prompt! Remember, imagination knows no bounds, and sometimes the most delightful adventures occur in the realm of absurdity. 🌈

1 of 30 responses

3. Calculating Dove Requirements:

- Each chocolate teapot houses **7 sky muzzles** during a rain shower.
- Assuming a delightful cosmic drizzle lasting 3 hours, we have a total of **21 sky muzzles**.
- For each sky muzzle, we'll need a pair of doves (because doves are social creatures).
- Therefore, we need **21 pairs of doves**, which translates to **42 individual doves**.

Tool:
GIGO



Linguistics are key to prompt engineering

Understanding the nuances of language and how it is used in different contexts is crucial for crafting effective prompts.

We need bigger and more chips

NVIDIA Announces Financial Results For Fourth Quarter And Fiscal 2024

February 21, 2024

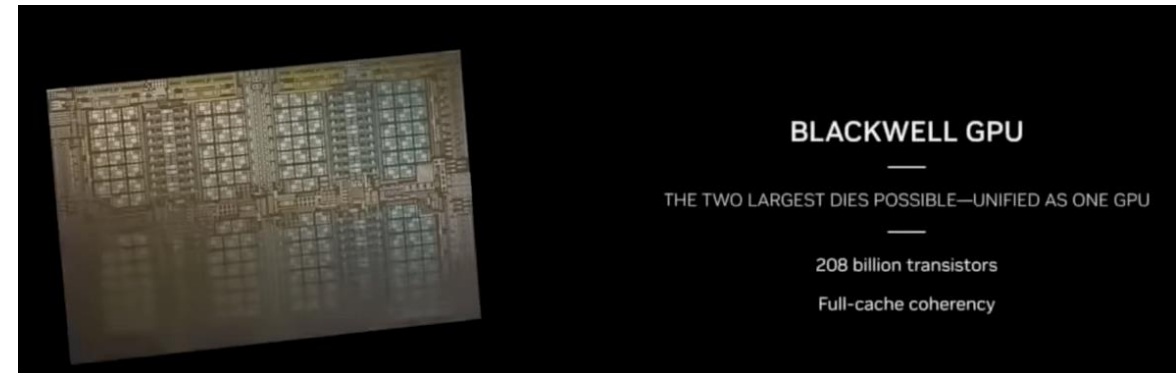
- Record quarterly revenue of \$22.1 billion, up 22% from Q3, up 265% from year ago
- Record quarterly Data Center revenue of \$18.4 billion, up 27% from Q3, up 409% from year ago
- Record full-year revenue of \$60.9 billion, up 126%




“Accelerated computing and generative AI have hit the tipping point. Demand is surging worldwide across companies, industries and nations,” said Jensen Huang, founder and CEO of NVIDIA.



Double Die Design
TSMC: CoWoS



We'll raise you – Wafer Scale - 4 Trillion!



Company type Private
Industry Semiconductor industry
Artificial Intelligence
Founded 2015; 9 years ago
Founders Andrew Feldman
Gary Lauterbach
Michael James
Sean Lie
Jean-Philippe Fricker
Headquarters Sunnyvale, California, US
Key people Andrew Feldman (CEO)
Products Wafer Scale Engine
Number of employees 335 (2023)^[1]
Website cerebras.net

But wait...

TECH+
TIMES



Elon Musk Warns AI and EV Growth Could Strain Electricity and Transformer Supplies by 2025

Elon Musk says there could be a shortage of electricity and transformers next year.

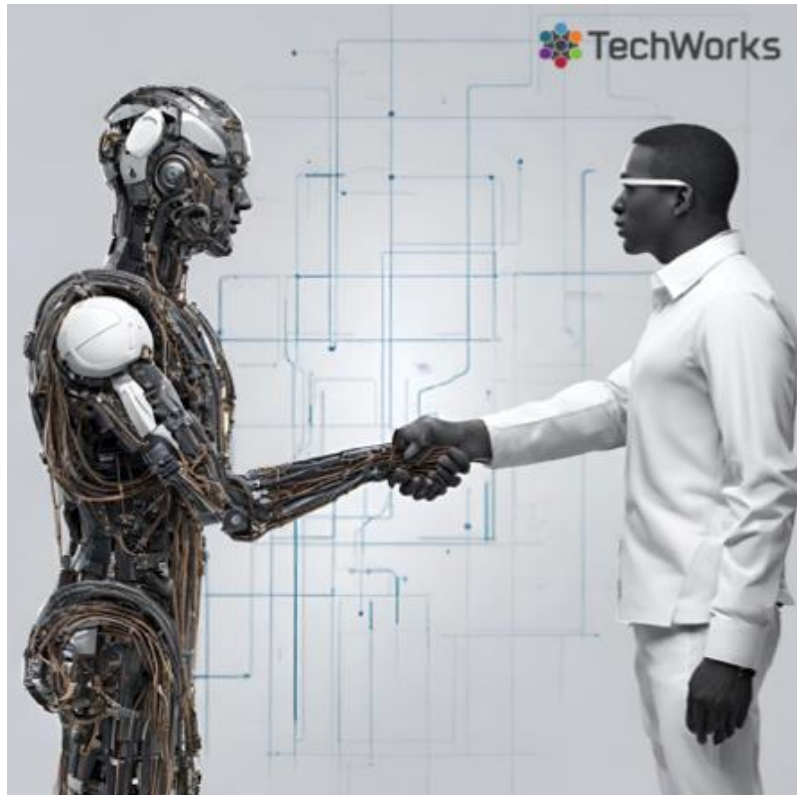
My Status Summary Today:

It's Insane!

Transformative - Disruptive

All dimensions: Technological, Societal,
Political, Economics, Ethical, Legal

TechWorks AI Launchpad



Engineering Trustworthy AI

Over the summer of 2023, TechWorks ran a number of events with the UK technology sector tackling the subject of Trustworthy AI.

The events were well attended, attracting representatives from over 60 organisations, from industry bluechips and SME's, academia and trade bodies. Each party has a self-declared interest in the opportunities and challenges that AI represents.

TechWorks' is the UK's Deep Tech Hub which hosts many technologists, engineers, entrepreneurs, researchers and business visionaries hence the events had an innovation and engineering focus. Our stated ambition; to identify opportunities to collaborate on the technical building blocks that will deliver on the vision of trustworthy AI systems and hence "*Engineering Trustworthy AI*" was the premise under which these meetings were convened.

The Agenda

Session 1: Collaboration Guest Speakers

The Importance of Collaboration to UK Innovation, Indro Mukerjee, CEO, Innovate UK

KEYNOTE: *How AI Thinks*, Nigel Toon, Founder & CEO, Graphcore.AI

KEYNOTE: *Engineering Ethics by Design: The Safety Imperative*, Dr. Paula Palade, JLR

Connecting UK Research into Responsible AI, Professor Sarvapali (Gopal) Ramchurn, Responsible AI UK

Session 2: Lift Off With The TechWorks Programme

Trustworthy AI – Practical Collaborative Engineering, Nick Allott, CEO, Nquiring Minds

Best Practice in AI for Developers, Dr William Jones, Lead for AI & Machine Learning, Embecosm

Generative AI in Automotive Cybersecurity Threat Modelling, Saket Mohan, Secure Elements

TechWorks AI Interactive with Gunny Dhadyalla, AESIN Director

Creating A Thriving AI Ecosystem, Esra Kasapoglu, Executive Director, Innovate UK

Closing Remarks and Next Steps

Followed by Networking / Bletchley Visit

Closing Remarks

What Next?

TechWorks AI

Deep Tech Domain Innovation &
Engineering Excellence

Engineering Trustworthy AI
Collaboratively

- Transparency
 - Open Source Code?
 - Open Standards / Specifications?
 - Open Data?
 - Open Models?
- Capability Building
 - ✓ Collaborative Projects
 - ✓ X-Community Events and Networking
 - ✓ Skills, Training, Knowledge Resources
- ✓ (A lot) More – t.b.d.

Closing Remarks

- ✓ Why is TechWorks AI?
- ✓ What is TechWorks AI?
- ✓ Who is TechWorks AI?
- ✓ How is TechWorks AI?
- Where and When is TechWorks AI?

If...

